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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/078,839	02/19/2002	James D. Vick JR.	2002-IP-006435	6566

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EXAMINER
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GAY, JENNIFER HAWKINS

ART UNIT	PAPER NUMBER
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3672

DATE MAILED: 09/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/078,839

**Applicant(s)**VICK, JAMES D. **Examiner**

Jennifer H Gay

**Art Unit**

3672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-144, 146-229, 236-241, 249-254 and 256-274 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-10, 52-85, 121, 124, 131, 132, 147-149 and 256 is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☒ Claim(s) See Continuation Sheet is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/23/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 37, 46, 106, 107, 120, 122, 123, 133, 134, 137, 138, 146, 191, 195, 196, 203, 204, 208, 209, 216, 217, 221, 222, 229 are rejected under 35 U.S.C. 102(b) as being anticipated by Sizer et al. (US 3,731,742).

*Regarding claims 37 and 191:* Sizer et al. discloses a method for actuating a well tool **410** in a well. The method involves the following steps:

- Displacing an actuator member **401** of the well tool where the well tool has a flow passage for the flow of fluid therethrough.
- Translating displacement of the actuator member to the displacement of an operating member **485** by use of a magnetic coupling **436** and **440** there between.
- Actuating the well tool in response to the displacement of the operating member.

*Regarding claims 46, 133, 134, 137, 138, 195, 196, 208, 209, 221, and 222:* The well tool is a safety valve.

*Regarding claims 106 and 217:* Sizer et al. discloses a well tool **410** that includes the following features:

- A flow passage therethrough (Figure 15).
- An actuator for displacing an actuator member **401** of the well tool.
- An operating member **485** for operating the well tool.

- A magnetic coupling **436** and **440** between the actuator member and the operating member.

*Regarding claims 107, 203, 216, and 229:* The magnetic coupling includes a first magnetic device attached to the actuator member and a second magnetic device attached to the operating member.

*Regarding claims 120, 122, and 123:* The operating member is a closure member of a valve.

*Regarding claim 146:* Sizer et al. discloses a safety valve **410** that includes the following features:

- An actuator for displacing an actuator member **401** of the well tool.
- An operating member **485** for operating the well tool.
- A magnetic coupling **436** and **440** between the actuator member and the operating member for translating displacement between the actuator member and the operating member.

*Regarding claim 204:* Sizer et al. discloses a method for installing a well tool **410** in a well. The method involves the following steps:

- Interconnecting a well tool within a tubing string.
- Positioning the tubing string in the well.
- Translating displacement of the actuator member **401** to the displacement of an operating member **485** by use of a magnetic coupling **436** and **440** there between.

3. Claims 11, 17-23, 32, 33, 35, 36, 96, 102-105, 119, 125, 150-152, 154-157, 165, 167-170, 178, 180-183, 257, 259-261, 263, 265, 266, 268-270, 272, 274 are rejected under 35 U.S.C. 102(e) as being anticipated by Deaton (US 6,237,693).

*Regarding claims 11, 96, 125, and 152 :* Deaton discloses a method for actuating a safety valve **10** that involves the following steps:

- Positioning the valve in the well
- Displacing an actuator member **36** of the safety valve.

- Translating displacement of the actuator member to displacement of an operating member **24**. The translation is performed across a pressure isolation barrier (Figure 2) without the use of any dynamic seals.
- Actuating the safety valve between an open and closed position in response to the displacement of the operating member.

*Regarding claims 17, 18, and 103:* The valve includes a flow passage therethrough and in the step of translating the operating member is displaced without exposing any dynamic seals to the pressure of the flow passage.

*Regarding claims 19 and 104:* The displacing step further involves the actuator member being isolated from the pressure in the flow passage without the use of dynamic seals.

*Regarding claims 20 and 105:* The operating member is pressure balanced.

*Regarding claims 21, 178:* Deaton discloses a well tool that includes the following features:

- An actuator **36** that includes a piston **40** which displaces in response to a first pressure applied to the piston.
- An operating member **24** which displaces to operate the well tool **10**, the operating member has a second pressure applied thereto.
- Displacement of the piston is translated to the operating member while the first and second pressures are isolated from each other without using dynamic seals.

*Regarding claims 22, 23, 119, 156, 157, 169, 170, 182, and 183 :* The well tool is a safety valve.

*Regarding claim 32:* The first pressure is from a control line **28**.

*Regarding claim 33:* A third pressure **33** is applied to the piston and the piston displaces in response to a differential between the first and third pressures.

*Regarding claim 35:* The third pressure may come from the annulus.

*Regarding claim 36:* The operating member is pressure isolated from the third pressure without the use of dynamic seals.

*Regarding claims 150, 151, 265, and 274:* The pressure barrier is a rigid barrier.

*Regarding claims 154, 167, and 180:* A pressure differential exists across the pressure barrier.

*Regarding claim 165:* Deaton discloses a method for installing a well tool that involves the following steps:

- Interconnecting the well tool in a tubing string that includes an actuating member **36**.
- Positioning the tool in the well
- Translating displacement of the actuator member to displacement of an operating member **24**. The translation is performed across a pressure isolation barrier (Figure 2) without the use of any dynamic seals.

*Regarding claims 168 and 181:* The actuator member is exposed to a first pressure and the operating member is exposed to a second that is different from the first.

*Regarding claims 257 and 266:* The actuator is displaced in response to a pressure differential.

*Regarding claims 259-261 and 268-270:* The pressure differential is between the control line and either the wellbore annulus, an internal flow passage, or an internal chamber of the valve.

*Regarding claims 263 and 272:* The actuator is displaced linearly.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 24-29, 126, 127, 158-163, 171-176, 184-189, 236-241, 249-254, 262, 264, 271, 273 rejected under 35 U.S.C. 103(a) as being unpatentable over Deaton (US 6,237,693) in view of Deaton et al. (US 6,433,991).

*Regarding claims 24-29, 126, 127, 158-163, 171-176, 184-189, 236-241, and 249-254:* Deaton discloses all of the limitations of the above claims except for well tool being activated being a packer, choke valve, sliding sleeve valve, flapper valve, or a perforator.

Deaton et al. discloses a subsurface safety valve similar to that of Deaton. Deaton et al. further teaches that it is well known to use the same type of tool to actuate various valves, i.e. flapper, sliding sleeve, and choke valves, packers, and perforators (1:5-22, 2:56-61, 3:4-11).

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have used the apparatus and method of Deaton to actuate a packer, choke valve, sliding sleeve valve, flapper valve, or perforator as taught by Deaton et al. in order to have used an actuator for the above well tools that was easily controlled. One would have been motivated to make such a combination because, as evidenced by Deaton et al., it is well known in the art to use an actuator such as that of Deaton or Deaton et al. to actuate a wide variety of well tools.

*Regarding claims 262, 264, 271, and 273:* Deaton discloses all of the limitations of the above claims except for the apparatus including a motor that rotated the actuator.

Deaton et al. further teaches that the apparatus includes a motor for rotating the assembly or actuator (Figures 10 and 11).

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Deaton to include the rotary motor taught Deaton et al. in order to have provided a means for rotating the apparatus downhole thus providing more control of the location and orientation of the well tool actuated by the apparatus.

6. Claims 47-51, 86, 90, 91, 128-130, 135, 136, 139-144, 197-202, 210-215, and 223-228 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sizer et al. (US 3,731,742) in view of Deaton et al. (US 6,433,991).

*Regarding claims 47-49, 91, 128, 129, 135, 136, 139-141, 143, 144, 147, 198, 200-204, 210-215, and 223-228:* Sizer et al. discloses all of the limitations of the above

claims except for well tool being activated being a packer, choke valve, sliding sleeve valve, flapper valve, or a perforator.

Deaton et al. discloses a subsurface safety valve similar to that of Sizer et al. Deaton et al. further teaches that it is well known to use the same type of tool to actuate various valves, i.e. flapper, sliding sleeve, and choke valves, packers, and perforators (1:5-22, 2:56-61, 3:4-11).

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have used the apparatus and method of Sizer et al. to actuate a packer, choke valve, sliding sleeve valve, flapper valve, or perforator as taught by Deaton et al. in order to have used an actuator for the above well tools that was easily controlled. One would have been motivated to make such a combination because, as evidenced by Deaton et al., it is well known in the art to use an actuator such as that of Sizer et al. or Deaton et al. to actuate a wide variety of well tools.

*Regarding claims 50, 51, and 86:* Sizer et al. discloses all of the limitations of the above claims except for the apparatus including a motor that rotated the actuator.

Deaton et al. further teaches that the apparatus includes a motor for rotating the assembly or actuator (Figures 10 and 11).

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Sizer et al. to include the rotary motor taught Deaton et al. in order to have provided a means for rotating the apparatus downhole thus providing more control of the location and orientation of the well tool actuated by the apparatus.

*Regarding claim 90:* The magnetic coupling includes a first magnetic device attached to the actuator member and a second magnetic device attached to the operating member.

*Regarding claim 91:* The operating members opens the safety valve 410.

7. Claims 88 and 93-95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sizer et al. (US 3,731,742) in view of Deaton et al. (US 6,433,991) as applied to claim 86 above, and further in view of Deaton (US 6,237,693).



Sizer et al. discloses all of the limitations of the above claims except for the safety valve not using dynamic seals.

Deaton discloses a subsurface safety valve similar to that of Sizer et al. Deaton further teaches that the valve does not use dynamic seals (2:56-3:12).

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Sizer et al. such that it did not include dynamic seals as taught by Deaton in order to have created a failsafe safety valve. A failsafe safety valve would have reduced the likelihood of damage to people, the environment, and the equipment thus reducing the cost of the operation of the wellbore (1:11-18).

8. Claims 34, 258, and 267 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deaton (US 6,237,693) in view of Simonds (US 6,491,106).

Deaton discloses all of the limitations of the above claims except for a second control line producing a third pressure that is applied the piston.

Simonds discloses a subsurface safety valve similar to that of Deaton. Simonds further teaches the use of two control lines for supplying actuating pressure to the valve (Figure 3).

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Deaton to include two control lines as taught by Simonds in order to have provided the need hydraulic force to the piston without a large amount of addition equipment (1:33-37). One would have been motivated to make such a combination because a means for reducing the length of control line need would have been obtained thus reducing the likelihood of failure of the control line, as taught by Simonds (1:15-24).

***Allowable Subject Matter***

9. Claims 1-10, 52-85, 121, 124, 131, 132, 147-149, and 256 are allowed.

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10. Claims 12-16, 30, 31, 38-45, 87, 89, 92, 97-101, 108-118, 153, 164, 166, 177, 179, 190, 192-194, 205-207, 218, 220 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

11. Applicant's arguments filed 23 July 2004 have been fully considered but they are not persuasive.

Applicant has argued that Deaton does not teach the translation of an actuator member displacement to displacement of an operating member across a pressure isolation barrier. Applicant further argues that Deaton could not teach this because a rod 102 connects the actuator member and the displacement member.

The examiner first notes that in response to applicant's argument that Deaton fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., that the actuator member and the displacement member are not directly mechanically connected) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is also noted that the piston cylinder 34A acts as a pressure isolation barrier between the actuator member and the operation member as it isolates the pressure within the cylinder, which is part of the actuator member, from the operation member.

Applicant has argued that Deaton does not teach that first and second pressures, respectively applied to the actuator member and the operating member, are isolated from one another without the use of dynamic seals. Applicant further argues that Deaton cannot teach this feature because the first pressure of the actuator member 36 is isolated the second pressure of the flow tube operating member 24 by a dynamic seal 53.

In response the examiner first notes that applicant has not defined how the first and second pressures are applied or to what portion of the actuator and operating

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members the first and second pressure are applied. Secondly, in using Deaton the examiner has defined the second pressure that acts on the operating member to be the pressure that is inside the tubing string. This pressure is isolated from the first pressure by the flow tube itself.

Applicant has argued that Sizer et al. does not teach that the displacement of an actuator member is translated into displacement of an operating member by the use of a magnetic coupling. Applicant further argues that Sizer et al. could not teach this feature because the operating member **485** is electromagnetically translated in response to the energization of an actuating member in the form of a stationary solenoid coil **440**.

In response the examiner first notes that the solenoids **436** and **440** do form a magnetic coupling as defined by Sizer et al. (19:55-20:25). Further, a solenoid<sup>1</sup> is defined as being magnetic. Secondly, solenoid **436**, which is part of the displaceable actuator member, is moved when solenoid **440** is energized thus forming a magnetic coupling. The movement of solenoid **436** causes the movement of the actuator member **401**, which translates its movement to the operating member **485** thus causing the actuation of the valve (20:15-25).

### ***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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<sup>1</sup> solenoid

1. A current-carrying coil of wire that acts like a magnet when a current passes through it.
2. An assembly used as a switch, consisting of a coil and a metal core free to slide along the coil axis under the influence of the magnetic field.

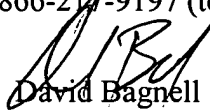
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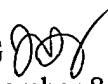
will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer H Gay whose telephone number is (703) 308-2881. The examiner can normally be reached on Monday-Thursday, 6:30-4:00 and Friday, 6:30-1:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on (703) 308-2151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
David Bagnell  
Supervisory Patent Examiner  
Art Unit 3672

JHG   
September 8, 2004

Continuation of Disposition of Claims: Claims rejected are 11,17-29,32-37,46-51,86,88,90,91,93-96,102-107, 119,120,122,123,125-130,133-144,146,150-152,154-163,165,167-176,178,180-189,191,195-204,208-217,219,221-229,236-241,249-254 and 256-274.

Continuation of Disposition of Claims: Claims objected to are 12-16,30,31,38-45,87,89,92,97-101,108-118,153,164,166,177,179,190,192-194,205-207,218 and 220.